

P-TREFIL-015/WO

### CLAIMS

1. A metal fiber concrete mix based on cement, aggregates and water, which includes metal fibers having:
  - 5 a diameter of between 1.15 mm and 1.8 mm,
  - an aspect ratio of between 35 and 45; and
  - 10 in which the quantity of these metal fibers is such that their weight is at least 80 kg/m<sup>3</sup> of hardened concrete.
2. The concrete mix as claimed in claim 1, in which the metal fibers have an aspect ratio of around 40.
- 15 3. The concrete mix as claimed in either of claims 1 and 2, in which the metal fibers have a length of between 45 and 65 mm.
4. The concrete mix as claimed in any one of the preceding claims, in which the dosage of metal fiber is between 80 and 180 kg/m<sup>3</sup>.
- 20 5. The concrete mix as claimed in any one of the preceding claims, in which the cement has a grain size of between 1 and 100 µm.
6. The concrete mix as claimed in any one of the preceding claims, in which the aggregates comprise sand having a grain size of between 1 and 5 mm.
- 25 7. The concrete mix as claimed in any one of the preceding claims, in which the aggregates comprise coarse elements with a size of between 5 and

25 mm.

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8. The concrete mix as claimed in any one of the preceding claims, in which the metal fibers are steel wire fibers.
9. The concrete mix as claimed in any one of the preceding claims, in which the metal fibers have a straight, corrugated, ribbed or hooked shape, or a combination of these shapes.
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10. A metal fiber concrete element obtained by pouring and hardening a concrete mix as claimed in any one of the preceding claims.
11. The concrete element as claimed in claim 10, which is obtained by pouring into a formwork or mold.
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12. The concrete element as claimed in claim 10 or 11, said element having a generally plane shape and a slenderness ratio of up to 35, but containing no conventional reinforcements.
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13. The use of a concrete element as claimed in any one of claims 10 to 12 as structural or decorative element in a construction, especially as a floor slab, shell, retaining wall, beam, column, foundation slab or raft.
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14. The use of a concrete mix as claimed in any one of claims 1 to 9 for the construction, by pouring into a mold or formwork, a structural concrete element such as a floor slab, a shell, a retaining wall, a foundation slab, a raft, a beam or a column.
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15. The use of a concrete mix as claimed in any one of claims 1 to 9 as ready mixed concrete.